

**PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Applicants: ROBERT S. CRESWELL, MICHAEL ZOLNIEREK, MICHAEL W. REGELBRUGGE,  
AND JAMES D. CHRYSLER

For: DIVERTER VALVE

Atty. Docket: 70038-0068

Commissioner for Patents  
PO Box 1450  
Mail Stop Patent Application  
Alexandria, VA 22313-1450

**PRELIMINARY AMENDMENT**

Sir:

Prior to examination of this application and before calculation of the filing fee,  
kindly amend the above-identified U.S. patent application as follows.

**Amendments to the Specification** begin on page 2 of this paper.

**Amendments to the Claims** begin on page 3 of this paper.

**Remarks** begin on page 6 of this paper.

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### **AMENDMENTS TO THE SPECIFICATION**

On page 1, after "Commissioner of Patents and Trademarks", please insert a new paragraph as follows:

#### **CROSS-REFERENCE TO RELATED APPLICATIONS**

This application claims priority on International Application No. PCT/US2004/033436, filed October 8, 2004, which claims the benefit of U.S. Provisional Patent Application 60/481,499, filed October 10, 2003, both are incorporated herein in their entirety.

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## **AMENDMENTS TO THE CLAIMS**

### **Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

### **Listing of Claims:**

1. (Currently Amended) A diverter valve ~~(10)~~ for selectively controlling the flow of fluid from a fluid source to one of at least two fluid outlets ~~(132, 136)~~, the valve comprising:
  - a housing ~~(12)~~ defining at least one flow passage ~~(54, 64, 66, 68)~~;
  - a first ceramic plate ~~(14)~~ mounted to the housing and fixed against rotation, the first ceramic plate having at least one flow passage ~~(88, 90)~~ in registry with the housing flow passage; and
  - a second ceramic plate ~~(16)~~ rotatably mounted within the housing, the second ceramic plate having at least one flow passage ~~(104, 106, 108, 110, 112)~~ that can be selectively placed into fluid communication with the housing flow passage; the diverter valve characterized by:
    - an accessory case ~~(20)~~ fixedly mounted to the second ceramic plate ~~(16)~~, the accessory case having at least one flow passage ~~(116, 118, 122)~~ in registry with the at least one second ceramic plate flow passage, wherein the at least one flow passage in the accessory case is configured to mount a flow adapter ~~(132, 136)~~.
2. (Currently Amended) The diverter valve of claim 1 wherein the accessory case ~~(20)~~ is adhered to the second ceramic plate ~~(16)~~.
3. (Currently Amended) The diverter valve of claim 2 wherein the accessory case ~~(20)~~ is adhered to the second ceramic plate ~~(16)~~ by an adhesive.
4. (Previously Presented) The diverter valve of claim 2 wherein the adhesive is epoxy.

5. (Currently Amended) The diverter valve of claim 1 wherein the accessory case ~~(20)~~ mounts two flow adapters ~~(132, 136)~~.

6. (Currently Amended) The diverter valve of claim 5 wherein one flow adapter ~~(132)~~ is for aerated flow and a second flow adapter ~~(136)~~ is for stream flow.

7. (Previously Presented) The diverter valve of claim 1 wherein the flow passages in the housing and the accessory case are configured and oriented to substantially balance hydraulic pressures acting on the ceramic plates.

8. (Currently Amended) The diverter valve of claim 7 wherein a flow passage ~~(68)~~ in the housing ~~(12)~~ is open to and parallel with the first ceramic plate ~~(14)~~ whereby pressure in the flow passage can act against the first ceramic plate to urge it toward the second ceramic plate.

9. (Currently Amended) The diverter valve of claim 1 further comprising a thrust bearing ~~(28, 30, 161, 178)~~ and a retainer ~~(24)~~, wherein the thrust bearing is disposed between the retainer and the second ceramic plate, and bears against the second ceramic plate with reduced friction to enable the second ceramic plate to rotate with lower torque.

10. (Currently Amended) The diverter valve of claim 9 wherein the thrust bearing comprises a wave spring ~~(28)~~ and washer ~~(30)~~.

11. (Currently Amended) The diverter valve of claim 9 wherein the thrust bearing comprises a low friction washer ~~(161)~~.

12. (Previously Presented) The diverter valve of claim 11 wherein the low friction washer comprises PTFE.

13. (Currently Amended) The diverter valve of claim 9 wherein the thrust bearing is a roller bearing ~~(178)~~.

14. (Currently Amended) The diverter valve of claim 1 wherein the first ceramic plate (14) is adhered to the housing ~~(12)~~.

15. (Currently Amended) The diverter valve of claim 1 further comprising at least one ring seal ~~(162, 164, 168)~~ between the first ceramic plate and the housing.

16. (Previously Presented) The diverter valve of claim 15 comprising three ring seals between the first ceramic plate and the housing.

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17. (Currently Amended) The diverter valve of claim 15, wherein the ring seal  
is seated within a groove ~~(168, 170, 172)~~.

18. (Previously Presented) The diverter valve of claim 17 wherein the groove is  
a dovetail groove.

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### **REMARKS**

The specification has been amended to include a cross-reference to the parent application. A complete listing of the claims is submitted for the convenience of the Examiner. It is respectfully submitted that no new matter is added to the application by these amendments. Applicants respectfully request that the above-noted amendment be entered.

If there are any issues that the Commissioner thinks may be resolved by way of telephone conference or email, he is cordially invited to contact the undersigned to resolve these issues.

Respectfully submitted,  
ROBERT S. CRESSWELL, ET AL.

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